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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,422	03/10/2004	John Frederick Ackerman	GEAE-0011-DV1	4370

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EXAMINER	
TUROCY, DAVID P	

ART UNIT	PAPER NUMBER
1762	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,422	ACKERMAN ET AL.	
	Examiner	Art Unit	
	David Turocy	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-30 and 32-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-30 and 32-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/23/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/2/2005 have been fully considered but they are not persuasive.

The applicant has argued against the Spence et al reference stating that is does not teach infiltrating the outer layer, but rather teaches coating the substrate. The examiner respectfully disagrees, infiltrating, is defined by Webster's online dictionary as "to cause to permeate something" and impregnating is defined as "to cause to be permeated". Therefore, it is the examiners position that infiltrating is synonymous with impregnating and the art does no recognize any distinction between coating and impregnating. *In re Marra et al.*, 141 USPQ 221.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one skilled in the art at the time of the invention to modify Spence to use the protective coating on a thermal barrier coating as suggested by Hasz to provide a desirable protection from environmental contaminants with a reasonable expectation of success because Spence teaches applying an alumina/silicon coating protects

various substrates, including ceramic, from contaminants and Hasz teaches thermal barrier coatings, with outer layers of ceramic, benefit from a contaminant protective coating.

The applicant has argued that there is no motivation to combine Spence et al. and Hasz et al. The applicant has argued that the contaminants addressed by Spence et al, carbon deposits, are not similar to the contaminants addressed by Hasz, CMAS deposits, and one skilled in the art would not consider the teaches of Hasz et al relevant to Spence et al. Hasz et al is utilized here to show that thermal barrier coatings comprising an alumina barrier layer and a bond coating are susceptible to various modes of damage from containments. Hasz discloses the contaminants as materials that are in the engine, which deposit on the surface of the engine part, from air and fuel sources, and impurities to oxidation products and only uses CMAS as an exemplary showing (Paragraph 2, lines 20-21 and 32-35). The examiner agrees Spence et al. is directed to carbon deposits, more particularly, carbon deposits on fuel contacting surfaces located in high temperature zones of gas turbine engines, where the carbon deposits are a side effect of the fuels being consumed within the engine (Column 1, lines 11-25). Therefore it is the examiners position that the Spence et al and Hasz et al are relevant art because they both teach of protecting turbine engine parts from contaminants. Spence teaches applying an n alumina/silicon coating protects various substrates, including ceramic, from contaminants and Hasz teaches thermal barrier coatings, with outer layers of ceramic, benefit from a contaminant protective coating.

The applicant has argued against the Hasz et al reference stating that is does not teach infiltrating the outer layer, but rather teaches coating the substrate. The examiner respectfully disagrees, infiltrating, is defined by Webster's online dictionary as "to cause to permeate something" and impregnating is defined as "to cause to be permeated". Therefore, it is the examiners position that infiltrating is synonymous with impregnating and the art does no recognize any distinction between coating and impregnating. *In re Marra et al.*, 141 USPQ 221.

The applicant has argued against the Hasz et al reference stating that it forms an impermeable barrier coating on the thermal barrier coating (TBC) and does not teach or suggest infiltration of the porous outer layer. While the examiner agrees the coating, as taught by Hasz, discloses forming an impermeable coating, Hasz et al also discloses this impermeable coating protects the TBC from infiltration of contaminants. Therefore, in order to be subsequent to infiltration, the TBC, as taught by Hasz, must necessarily have some amount of porosity. Therefore as discussed by the applicant, since the coating compositing is applied to a porous material, the "coating" composition would inherently impregnate, i.e. infiltrate. *See Remark, Page 7, Paragraph 2.* Therefore the examiner maintains the above reliance on *In re Marra*.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., reservoir of alumina to react with the contaminants to form a third phase) are not recited in the rejected claim(s). Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

The applicant has argued neither Spence or Hasz teach of length of treatment time. While the examiner agrees, such a length of treatment time is not taught, the time is clearly a result effective variable as stated by the examiner and it would have been obvious for one of ordinary skill in the art to optimize such a treatment length to insure proper coating thickness. Hasz discloses the importance of determining the appropriate coating thickness, where thick and thin coatings are possible (Column 4, lines 25-36). Therefore it is the examiners position that the length of treatment is a result effective variable, as not enough time would provide a less than desired coating thickness resulting in poor protective properties and too much time would provide a coating thickness which does not offer additional benefit of more protection. It would have been obvious to one of ordinary skill in the art at the time of the invention to determine the optimal heat treatment time, in the process of Spence in view of Hasz, through routine experimentation, to provide the desired protective layer on a thermal barrier coating. It is well settled that determination of optimum values of these process parameters is within the skill of one practicing in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

The applicant has argued against the prior art stating none of the prior art cited or reviewed by the examiner teaches of a turbine component in an assembled state. The examiner respectfully disagrees, where the component as taught by Spence is clearly in "an assembled state", where such a term is given its broadest reasonable interpretation.

The applicant has argued against the Ceramic and Glasses reference stating that is does not teach forming finely divided alpha alumina. However, the prior art and the present claims, reflected by claim 26, teach all the same process steps and thus the results obtained by applicants process must necessarily be the same as those obtained by the prior art. Therefore by thermally converting the aluminum alkoxide to alpha alumina, it must necessarily result in finely divided alpha alumina. Either 1) the applicant and the prior art have different definitions for an alpha alumina thermally converted from aluminum alkoxide, or 2) the applicant is using other process steps or parameters that are not shown in the claim. The applicant has requested an affidavit from the examiner defending the position above, however, such a affidavit is not necessary. The claim, which requires converting to finely divided alumina, only requires thermal conversion of the aluminum alkoxide, where the prior art clearly discloses thermal conversion and therefore both the reference and the applicants claim require the same process steps. Therefore, the examiner maintains the above position, where thermal conversion must necessarily result in finely divided alpha alumina because the applicant arrives at such using the same process steps.

In response to applicant's argument that there is no suggestion to combine Rigney, Spence, and Hasz, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir.

1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Rigney teaches of repairing a damaged turbine component, discloses removal of the entire thermal barrier coating, repairing the metal component at the discrete location of the damage and finally reapplying the thermal barrier coating to the outside of the refurbished turbine component (abstract) and one would be motivated to modify Rigney to apply the protective coating to the thermal barrier coating of a refurbished turbine component as suggested by Spence in view of Hasz to provide a desirable protection of a thermal barrier coating for a turbine component because Spence in view of Hasz discloses a protective coating applied to a thermal barrier coating is known in the art to provide protection against contamination and therefore would reasonably be expected to effectively provide a refurbished turbine component with a outer thermal barrier coating with protection against contaminants.

Information Disclosure Statement

2. The correctly initialed information disclosure statement has been submitted with this office action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having

ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 17-25, 27-30, 32-35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5324544 by Spence et al. ("Spence") in view of US Patent 5871820 by Hasz et al. ("Hasz").

These claims are rejected for the same reasons as set forth in the office action dated 8/5/2005, and for the reasons set forth above.

5. Claims 26 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5324544 by Spence et al. ("Spence") in view of US Patent 5871820 by Hasz et al. ("Hasz") and further in view of Ceramics and Glasses.

These claims are rejected for the same reasons as set forth in the office action dated 8/5/2005, and for the reasons set forth above.

6. Claims 32 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6274193 by Rigney et al. ("Rigney") in view of US Patent 5324544 by Spence et al. ("Spence") in view of US Patent 5871820 by Hasz et al. ("Hasz").

These claims are rejected for the same reasons as set forth in the office action dated 8/5/2005, and for the reasons set forth above.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy
AU 1762

TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER